NEW SPECIES OF *RAPALA* AND *SINTHUSA* FROM MINDANAO (LEPIDOPTERA : LYCAENIDAE)

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Rapala tomokoae H. Hayashi, H. Schroeder & C. Treadaway, sp. nov. (Figs. 1-4, 9-12)

♂. Upperside forewing ground colour deep blue, with very broad black border. Hindwing ground colour as in forewing. A greyish quadrate brand at the base of space 7. Comparatively short tail at vein 2 and prominent lobe in space 1a. Underside ground colour brownish green. Post-discal bands narrow, and edged with greenish white outwardly. A hair tuft along dorsum on forewing black inner-half and brown outer-half.

Forewing length 17-19mm.

Male genitalia : Dorsum moderately large, tegumen separated from scaphium by lateral membranous fenestrulae except the dorso-median portion whereon tegumen fused with scaphium completely. Brachia large, the basal connected with lateral extension of tegumen. Valvae short and stout, becoming narrow towards apex. Phallus long, subzonal portion about the same length as suprazonal one.

♀. Upperside ground colour paler than male. Black border as in male. Underside ground colour paler than male. Markings as in male, but paler than male.

Forewing length 17-18 mm.

Distribution : Mindanao

Holotype ♂, Mt. Apo, Mindanao, February, 1978. K. Nakamoto leg. Paratypes 1♂ 1♀, Mt. Apo, Mindanao, January, 1978, T. Ohtani leg, 2♂♂ 3♀♀, Mt. Apo, Mindanao, February, 1978, K. Nakamoto leg., 2♂♂, Mt. Apo, Maubel River, 5000ft, Mindanao, 15 June 1976, C. G. Treadaway leg.

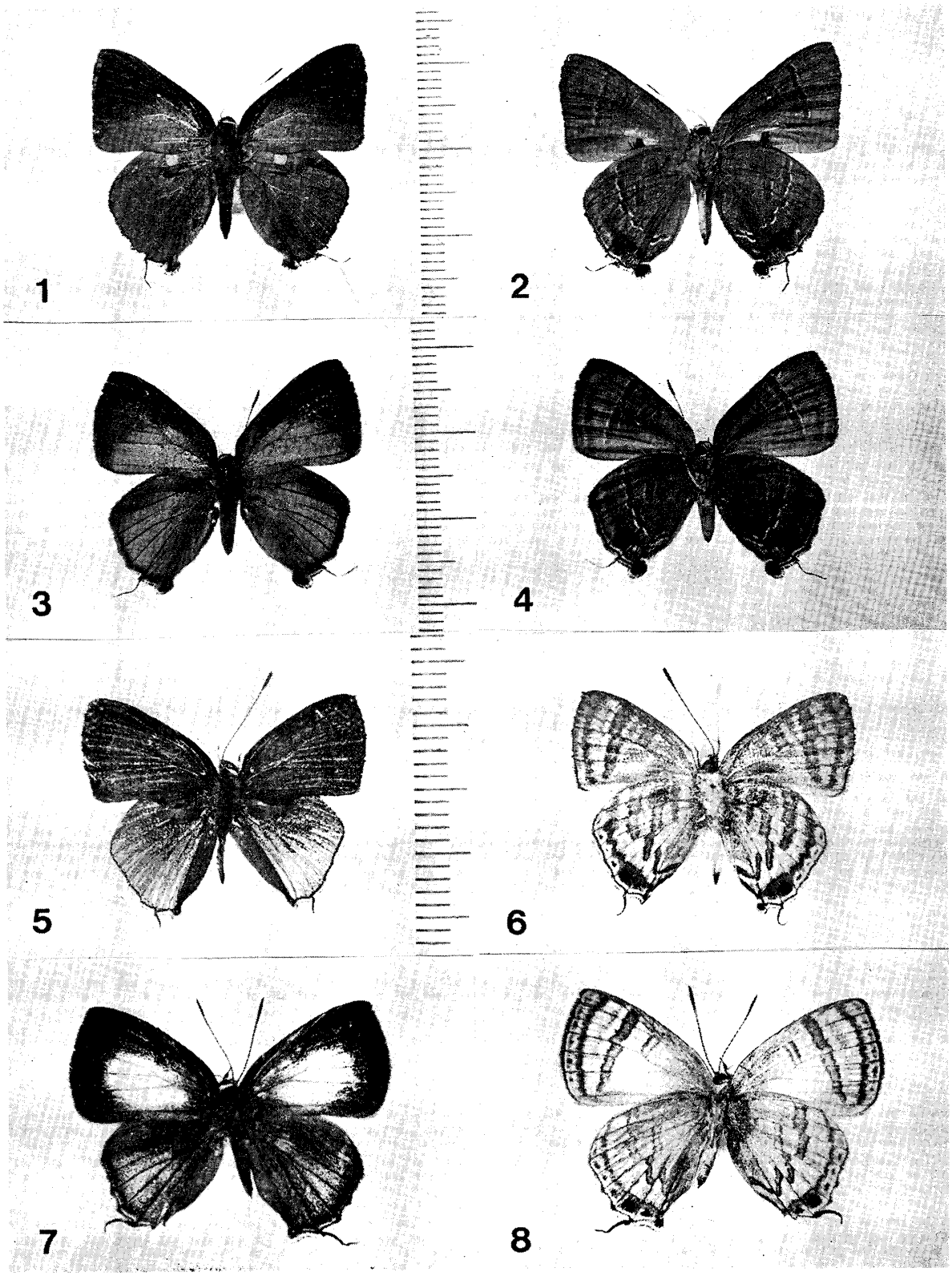
The holotype and a female paratype are to be preserved in the Osaka Museum of Natural History.

The present new species resembles *Rapala elcia melida* Fruhstorfer, but easily distinguishable from the coloration ; *melida* has not such conspicuous greenish colour on underside. In addition a black and brown hair tuft on underside forewing of male is very unique. *Melida* has no such remarkable hair tuft. The male genitalia of the present new species and *melida* are also different. The figures of male genitalia of *melida* are shown for comparison.

The specific name of this species is dedicated to the first author's wife.

Sinthusa mindanensis mindanensis H. Hayashi, H. Schroeder & C. Treadaway, sp. nov. (Figs. 5-8, 17-19)

♂. Upperside forewing ground colour black, very slightly dark purple colour visible only when illuminated and viewed from certain angles. Hindwing tailed at vein 2 and only a pendulous lobe at vein 1b. Shining dark blue in spaces 1c-5 and the marginal area in space 6, black in other area. Pale brand around the base of space 7. Underside forewing ground colour white. Very broad cell-end spot and post-discal band dark brown, and outwardly edged with white. A black recumbent hair-tuft at mid-dorsum. Hindwing white. Cell-end stripe and post-discal band above vein 4 broad and dark brown. Narrow stripe below vein 4 ochre, and outwardly edged with dark brown. A black tornal spot in space 2 and another on the lobe. Tornal ochre area rather conspicuous.



Figs. 1-2. *Rapala tomokoae* sp. nov., holotype ♂.
Figs. 3-4. ditto paratype ♀.
Figs. 5-6. *Sinthusa mindanensis mindanensis* sp. nov., holotype ♂.
Figs. 7-8. ditto paratype ♀.

Forewing length 11mm.

Male genitalia : Dorsum moderately large, socius very short, its postero-ventral margin straight or slightly concave. Brachia with the basal portion swollen inward. Valvae fused with each other at the basal two-thirds of the ventral edge, distal a-third short and stout, strongly dentated apically. Phallus very large, long and sinuate, vesical opening of aedeagus oblique, apex ventrally edged with a narrow and slightly sinuate lamella.

♀. Upperside forewing black, with a extremely large white patch. Hindwing dark brown, tornal area sparsely dusted with greyish white scaling in spaces 1b-5. Underside paler than male, markings as in male, but narrower and much paler as a whole, especially cell-end stripes on both wings almost white.

Forewing length 13 mm.

Distribution : Mt. Apo, Mindanao

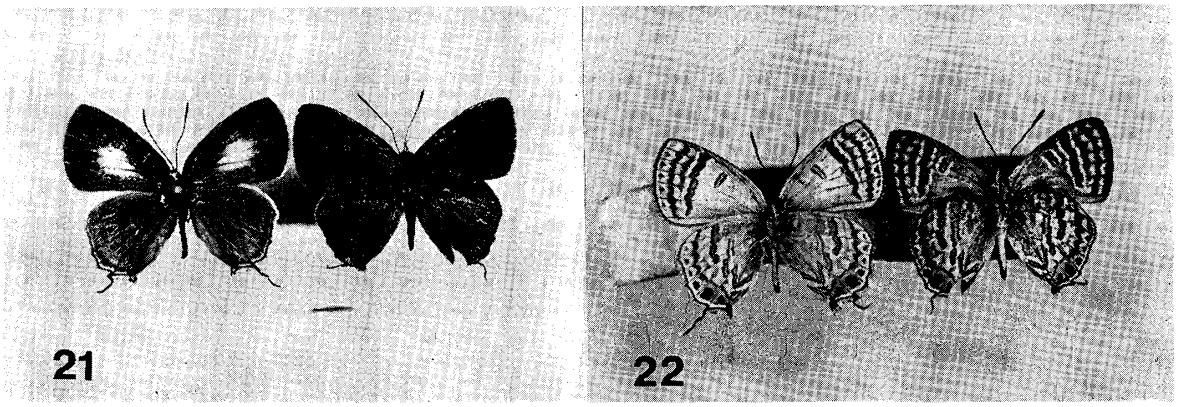
Holotype ♂, Mt. Apo, Mindanao, February, 1978, K. Nakamoto leg. Paratype 1♀, Mt. Apo, Mindanao, February, 1978, K. Nakamoto leg.

The holotype and a female paratype are to be preserved in the Osaka Museum of Natural History.

The present new species is very unique and easily distinguishable from its allied species *Sinthusa privata* Fruhstorfer and *S. peregrinus* Semper in the respects in Table 1.

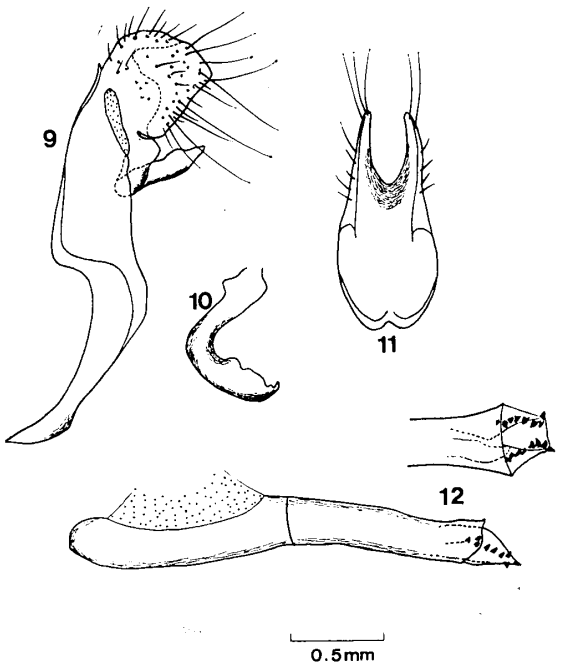
Table 1. A comparison between males of *Sinthusa privata* Fruhstorfer, *S. peregrinus* Semper and *S. mindanensis mindanensis* sp. nov.

		S. privata	*S. peregrinus*	*S. mindanensis* sp. nov.
Upperside	Forewing ground colour	dull indigo-blue	dull purplish-blue	almost black
	Forewing black border	very broad	moderately broad	unrecognized
	Hindwing ground colour	shining bright purple	dull purplish-blue	shining dark purple
	Hindwing space 6	entirely black	entirely black	shining dark purple in marginal area
Underside	Forewing ground colour	greyish pale-brown, apical area reddish-brown	greyish white	white
	Forewing cell-end stripe	narrow, reddish brown, outlined with white	narrow, ochre, outlined with dark brown	broad, dark brown, outlined with white
	Forewing post-discal band	more or less dislocated at vein 4, reddish brown	narrow, mostly continuous, ochre	broad, mostly continuous dark brown
	Hindwing post-discal band	narrow, broken at each vein except vein 5	narrow, broken at vein 4 and 6	broad, but becoming narrow downward, dislocated only at vein 4



Figs. 21-22. *Sinthusa mindanensis stephaniae* ssp. nov., holotype ♂(right) & paratype ♀(left).

The male genitalia in this new species most resemble those of *S. privata*, but differ from those especially in valvae as follows. In *privata*, valvae fused with each other at the basal half of the ventral edge, but fused at the basal two-thirds in the present new species. In *privata*, dorsal margin of valva denticulate at the subapical portion, whereas denticles in this new species more prominent and spread towards apical portion.



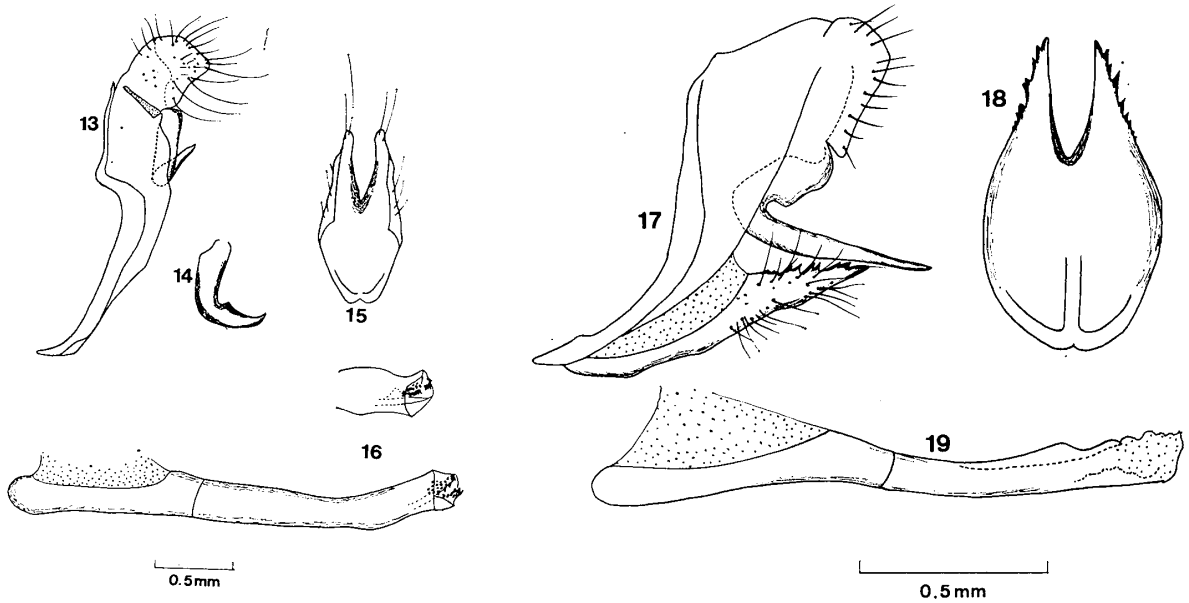
Sinthusa mindanensis stephaniae H. Hayashi, H. Schroeder & C. Treadaway ssp. nov. (Figs. 21-22)

From North Mindanao, Bukidnon, we have a small series of 2♂ and 4♀ on hand differing constantly from *Sinthusa mindanensis mindanensis* from Mt. Apo.

♂. The most important differences are found in the markings of the forewing underside being white with the male showing more distinct markings than in the nominate subspecies. The new subspecies can be recognized by an additional line, tapering off posteriorly, between the postdiscal and the submarginal band. In the nominate subspecies in this area there is only an obscure shadow, no distinct line. Apart from these differences the male of this subspecies agrees with the male of the nominate subspecies.

Forewing length 13 mm.

♀. In the female the white patch on the forewing upperside is variable in size ranging from one third to about two thirds of the large white patch in the nominate subspecies. In addition, the female of the new subspecies is lacking the greyish white scaling on the hindwing upperside. On the forewing underside there is the same additional brown distinct line between the postdiscal



Figs. 9-12. *Rapala tomokoae* sp. nov., ♂. genitalia: (9) Lateral aspect of ring; (10) Brachium; (11) Dorsal aspect of valvae; (12) Phallus.

Figs. 13-16. *Rapala elcia melida* Fruhstorfer, ♂. genitalia for comparison: (13) Lateral aspect of ring; (14) Brachium; (15) Dorsal aspect of valvae; (16) Phallus.

Figs. 17-19. *Sinthusa mindanensis mindanensis* sp. nov., ♂. genitalia: (17) Lateral aspect with phallus removed; (18) Dorsal aspect of valvae; (19) Phallus.

and submarginal bands, which varies in length but is always more obvious than in the nominate subspecies.

Forewing length 13.5-15 mm.

Distribution : Mt. Kitanglad, N. Mindanao

Holotype ♂, Mt. Kitanglad, N. Mindanao, 4000 ft., 10 April 1977, T. Borromeo leg. Paratypes 1♂, Mt. Kitanglad, N. Mindanao, 3800 ft., 26 July 1974, C. Treadaway leg., 3♀♀ Mt. Kitanglad, N. Mindanao, 3000-4000 ft., 5 May 1975, 8 June 1976, C. Treadaway leg., 4 April 1977, T. Borromeo leg., 1♀ Lacolac, Bukidnon, N. Mindanao, 2600 ft., 5 June 1976, W. Treadaway leg.

The holotype and paratypes are deposited in the Collection C. Treadaway.

This new subspecies is named after the third author's daughter Stephanie.

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Zusammenfassung

In der vorliegenden Arbeit werden drei neue Lycaeniden-Taxa von Mindanao beschrieben. Es handelt sich dabei um die Arten *Rapala tomokoae* sp. nov. und *Sinthusa mindanensis* sp. nov. von dem Berg Apo, Mindanao, sowie um die Unterart *Sinthusa mindanensis stephaniae* ssp. nov. von Mt. Kitanglad, Nord-Mindanao.

摘　　要

西ドイツの Schroeder (Senckenberg 博物館), Treadaway および林　寿一の3名はミンダナオ産シジミチョウを共同研究する機会をもち，その結果 *Rapala* の1新種と *Sinthusa* の1新種，1新亜種をここに記載した.